Identification_Information:
  Citation:
    Citation_Information:
      Originator: Bookstrom, A.A.
      Originator: Box, S.E.
      Originator: Fousek, R.S.
      Originator: Jackson, B.L.
      Originator: Wallis, J.C.
      Originator: Kayser, H.Z.
      Publication_Date: 2004
      Title: Spatial database in Baseline and Historic Depositional Rates and Lead Concentrations, Floodplain Sediments, Lower Coeur d'Alene River, Idaho
      Geospatial_Data_Presentation_Form: vector digital data
      Series_Information:
        Series_Name: U.S. Geological Survey Open-File Report
        Issue_Identification: 04-1211
      Online_Linkage: http://pubs.usgs.gov/of/2004/1211/
  Description:
    Abstract:
      Lead-rich sediments, containing at least 1,000 ppm of lead cover about 60 km2 of the 84-km2 floor of the main stem of the Coeur d'Alene River valley (Bookstrom and others, 2001). Large-scale mining and milling of veins enriched in silver (Ag), lead (Pb), zinc (Zn), and other metals began in 1886 in the Coeur d'Alene mining region. Until 1968, some mills discarded pulverized tailings, containing particulate metallic-sulfide minerals, directly into streams of the upper Coeur d'Alene River drainage basin. The discarded tailings washed down-stream, mixed with other sediments in transport, and were re-deposited down-valley.

      Frequent floods continue to transport metal-enriched sediment down-valley and onto the floodplain. Thick deposits of lead-rich sediments are present in the low-gradient river channel west of Cataldo Landing. These river-channel deposits of lead-rich sediments are an important secondary source of lead-rich sediments, vulnerable to transport during floods. Floodwaters continue to mobilize and re-deposit lead-rich sediments from this large secondary source, even though tailings have not been discarded into tributary streams since 1968, and large volumes of lead-rich sediments were removed from tributary streams and floodplains during the late 1990's. Furthermore, floodwaters will continue to remobilize lead-rich sediments from the river channel, as well as from smaller secondary sources along its banks and levees, and will continue to deposit lead-rich sediments in lateral flood basins, where waterfowl commonly feed, until these secondary sources are removed, stabilized and covered, or effectively separated from the flood basins.

      The "May 1980 Mt. St. Helens volcanic-ash layer" provided an excellent 1980 time-stratigraphic marker layer, referred to as the"1980 volcanic-ash layer". The pre-remedial baseline interval is defined as sediment above the 1980 time-stratigraphic horizon at the time of measurement and sampling, most of which was done between 1991 and 1995 (1993 +/- 2y), and all of which was done between 1990 and 1998.

Purpose: The primary purpose of this study is to quantify pre-remedial baseline depositional rates and lead concentrations in sediments deposited between 1980 and about 1993, in various settings on the floodplain of the main stem of the Coeur d'Alene River, and compare baseline to historic and background depositional rates and lead concentrations. The secondary purpose is to explain the implications of this information for environmental remediation in the context of fluvial processes still acting on secondary sources of lead-rich sediments, previously deposited along floodwater flow paths. The CDA_SR_PB spatial database was created to enable the authors to display sample sites, showing baseline sediment deposition rates, and lead concentrations in baseline-interval sediments, in the context of surficial geologic units, mapped on the floodplain of the main stem of the Coeur d'Alene River. This information was gathered and organized in support of ongoing studies of the environmental impacts of lead-rich floodplain sediments, and long-term cleanup plans being formulated by the U.S. Environmental Protection Agency and others.

Supplemental_Information: The CDA_SR_PB spatial dataset is an ESRI-formatted shapefile (that consists of a collection of files of the same name having the following file extensions: DBF, SBN, SBX, SHP, and SHX). It is not merely a new "revision" of the pre-existing data (Bookstrom and others, 2001) from which it was built: the addition of one sample site, the deletion of a few others, and a significant amount of new sedimentation-rate data make it a new product. The dataset contains information for 131 sample localities.

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: 2004

Currentness_Reference: publication date

Status:

Progress: Complete for informal Open-File Report publication; however, minor revisions are likely to be made to the spatial database when the report is superseded by a U.S. Geological Survey Scientific Investigations Report.

Maintenance_and_Update_Frequency: Minor revisions may likely be made to the spatial database when it is formally published as a U.S. Geological Survey Scientific Investigations Report.

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate: -116.820096

East_Bounding_Coordinate: -116.252574

North_Bounding_Coordinate: 47.585365

South_Bounding_Coordinate: 47.340604

Keywords:

Theme:

Theme_Keyword_Thesaurus: Glossary of Geology, American Geological Institute

Theme_Keyword: Surficial geology

Theme_Keyword: Lead

Theme_Keyword: Tailings

Theme_Keyword: Sediment

```
      Theme_Keyword: Sedimentation rate
    Place:
      Place_Keyword: Coeur d'Alene River
      Place_Keyword: Kootenai County
      Place_Keyword: Shoshone County
      Place_Keyword: Idaho
      Place_Keyword: Pacific Northwest
      Place_Keyword: United States
      Place_Keyword: USA
  Access_Constraints: none
  Use_Constraints: Any hardcopies utilizing these data sets shall clearly
indicate their source. If the users have modified the data in any way they are
obligated to describe the type of modifications they have performed. User
specifically agrees not to misrepresent these data sets, nor to imply that
changes they made were approved by the U.S. Geological Survey.
  Point_of_Contact:
    Contact_Information:
      Contact_Person_Primary:
        Contact_Person: Arthur A. Bookstrom
        Contact_Organization: U.S. Geological Survey
      Contact_Position: Geologist
      Contact_Address:
        Address_Type: mailing and physical address
        Address: 904 W. Riverside Avenue, Rm. 202
        City: Spokane
        State_or_Province: Washington
        Postal_Code: 99201
        Country: USA
      Contact_Voice_Telephone: 1-509-368-3119
      Contact_Facsimile_Telephone: 1-509-368-3199
      Contact_Electronic_Mail_Address: abookstrom@usgs.gov
  Data_Set_Credit: John C. Wallis and Helen Z. Kayser (contractors) wrote the
metadata, and Gary L. Raines reviewed the digital data and metadata.
  Security_Information:
    Security_Classification_System: none
    Security_Classification: Unclassified
  Native_Data_Set_Environment: Microsoft Windows 2000 Version 5.0 (Build 2195)
Service Pack 4; ESRI ArcCatalog 9.0.0.535
Data_Quality_Information:
  Attribute_Accuracy:
    Attribute_Accuracy_Report: Accuracy was verified by manual comparison of the
source data with hardcopy printouts, and on screen evaluations.
  Logical_Consistency_Report: These data are believed to be logically
consistent, though no tests were performed other than using the data for
analysis.
  Completeness_Report: Original vector data was assumed to be complete.
  Positional_Accuracy:
    Horizontal_Positional_Accuracy:
```

Horizontal_Positional_Accuracy_Report: The horizontal positional accuracy for the digital data is no better than about 15 meters based on digitizing RMS error.
Quantitative_Horizontal_Positional_Accuracy_Assessment:
Horizontal_Positional_Accuracy_Value: 15 meters
Vertical_Positional_Accuracy:
Vertical_Positional_Accuracy_Report: No vertical data.
Lineage:
Source_Information:
Source_Citation:
Citation_Information:
Originator: Bookstrom, A.A.
Originator: Box, S.E.
Originator: Campbell, J.K.
Originator: Foster, K.I.
Originator: Jackson, B.L.
Publication_Date: 2001
Title: Lead rich sediments, Coeur d'Alene River valley, Idaho: Area, volume, tonnage, and lead content
Edition: 1.0
Geospatial_Data_Presentation_Form: digital map
Series_Information:
Series_Name: Open-File Report
Issue_Identification: 01-140
Publication_Information:
Publication_Place: Menlo Park, CA
Publisher: U.S. Geological Survey
Online_Linkage: http://pubs.usgs.gov/of/2001/of01-140/
Source_Scale_Denominator: 24000
Type_of_Source_Media: map
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 2001
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: Bookstrom and others (2001)
Source_Contribution: Two dBase4 files (ALSAMPB.DBF and THXPB11.DBF) provided sample site locations. ESRI shape files (CDASURF4_UTM.SHP, FPAREAM2.SHP, SEGMENTS.SHP and PB1000.SHP) were incorporated into the accompanying map plates to provide a basemap on which to overlay data from the CDA_SR_PB spatial database.
Source_Information:
Source_Citation:
Citation_Information:
Originator: Horowitz, A.J.
Originator: Erlick, K.A.
Originator: Robbins, J.A.
Originator: Cook, R.B.

Publication_Date: 1995
Title: Effect of mining and related activities on the sediment
Edition: 1.0
Geospatial_Data_Presentation_Form: tabular digital data
Publication_Information:
Publication_Place: New York, New York
Publisher: John Wiley and Sons, LTD
Type_of_Source_Media: GPS Receiver
Source_Time_Period_of_Content:
Time_Period_Information:
Single_Date/Time:
Calendar_Date: 1995
Source_Currentness_Reference: publication date
Source_Citation_Abbreviation: Horowitz and others (1995)
Source_Contribution: One sample point from this tabular report was added to the CDA_SR_PB dataset. The sample point location was obtained by a GPS receiver.
Process_Step:
Process_Description: A new sample point location (from Horowitz and others, 1995), and new data on sedimentation rate and lead concentration were added to the dBase4 file (Bookstrom and others, 2001) using Microsoft Excel. The dBase4 file was then imported into ArcView and converted to a shape file CDA_SR_PB. An ArcView legend file, CDA_SR_PB.AVL, was made to format the theme.
Process_Date: Unknown
Process_Step:
Process_Description: The CDASURF4_UTM, FPAREAM2, SEGMENTS and PB1000 shapefiles (Bookstrom and others, 2001) were imported into an ArcView project and used to provide a basemap on which sedimentation-rate and lead-concentration data could be shown. These data were used without modification with the exception of subsetting the SEGMENTS shapefile (to exclude valley boundary lines numbered 1 through 8, due to their irrelevance in this study.
Source_Used_Citation_Abbreviation: Bookstrom and others (2001), Horowitz and others (1995)
Process_Date: 2001 - 2005
Process_Contact:
Contact_Information:
Contact_Person_Primary:
Contact_Person: Arthur A. Bookstrom
Contact_Organization: U.S. Geological Survey
Contact_Position: Geologist
Contact_Address:
Address_Type: mailing and physical address
Address: 904 W. Riverside Avenue, Rm. 202
City: Spokane
State_or_Province: WA
Postal_Code: 99201
Country: USA
Contact_Voice_Telephone: 1-509-368-3119

```
          Contact_Facsimile_Telephone: 1-509-368-3199
          Contact_Electronic_Mail_Address: abookstrom@usgs.gov
    Process_Step:
      Process_Description: Metadata imported.
      Source_Used_Citation_Abbreviation:
C:\WRDIA\CDA_meta\6th_time_Jan05\2_OFR\metadata\cda_sr_pb-meta.xml
Spatial_Data_Organization_Information:
  Direct_Spatial_Reference_Method: Vector
  Point_and_Vector_Object_Information:
    SDTS_Terms_Description:
      SDTS_Point_and_Vector_Object_Type: Entity point
      Point_and_Vector_Object_Count: 131
Spatial_Reference_Information:
  Horizontal_Coordinate_System_Definition:
    Planar:
      Grid_Coordinate_System:
        Grid_Coordinate_System_Name: Universal Transverse Mercator
        Universal_Transverse_Mercator:
          UTM_Zone_Number: 11
          Transverse_Mercator:
            Scale_Factor_at_Central_Meridian: 0.999600
            Longitude_of_Central_Meridian: -117.000000
            Latitude_of_Projection_Origin: 0.000000
            False_Easting: 500000.000000
            False_Northing: 0.000000
      Planar_Coordinate_Information:
        Planar_Coordinate_Encoding_Method: coordinate pair
        Coordinate_Representation:
          Abscissa_Resolution: 0.000064
          Ordinate_Resolution: 0.000064
        Planar_Distance_Units: meters
    Geodetic_Model:
      Horizontal_Datum_Name: North American Datum of 1927
      Ellipsoid_Name: Clarke 1866
      Semi-major_Axis: 6378206.400000
      Denominator_of_Flattening_Ratio: 294.978698
Entity_and_Attribute_Information:
  Detailed_Description:
    Entity_Type:
      Entity_Type_Label: cda_sr_pb
      Entity_Type_Definition: ESRI point shapefile (which contains files with
the extensions .SHP, .SHX, .SBX, .SBN, .DBF) of sedimentation rates and lead
concentrations for 131 location points in the study area.
    Attribute:
      Attribute_Label: FID
      Attribute_Definition: Internal feature number.
      Attribute_Definition_Source: ESRI
      Attribute_Domain_Values:
```

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        Unrepresentable_Domain: Sequential unique whole numbers that are
automatically generated.
    Attribute:
      Attribute_Label: Shape
      Attribute_Definition: Feature geometry.
      Attribute_Definition_Source: ESRI
      Attribute_Domain_Values:
        Unrepresentable_Domain: Coordinates defining the features.
    Attribute:
      Attribute_Label: SAMP_NO
      Attribute_Definition: SAMPLE NUMBER - from original study (see Bookstrom
and others, 2001)
      Attribute_Domain_Values:
    Attribute:
      Attribute_Label: DATA_SET
      Attribute_Definition: DATA-SET IDENTIFIER - It consists of initials
researcher's affiliation, researcher's last name, and year that data were
collected.
      Attribute_Domain_Values:
    Attribute:
      Attribute_Label: REF
      Attribute_Definition: REFERENCE IDENTIFIER - The data source citation.
Complete references are provided in the report text in the List of References
section.
    Attribute:
      Attribute_Label: UTM_E
      Attribute_Definition: UTM EAST - The coordinate (in meters) of sample
site, (UTM map projection: Universal Transverse Mercator, zone 11, North
American Datum of 1927)
    Attribute:
      Attribute_Label: UTM_N
      Attribute_Definition: UTM NORTH - The coordinate (in meters) of sample
site, (UTM map projection: Universal Transverse Mercator, zone 11, North
American Datum of 1927)
    Attribute:
      Attribute_Label: SYS
      Attribute_Definition: SYSTEM IDENTIFIER - The label used to identify
wetland system
      Attribute_Domain_Values:
        Enumerated_Domain:
          Enumerated_Domain_Value: RU
          Enumerated_Domain_Value_Definition: River bank Upland - wedge shaped
deposits of lead-rich sediments on the river-facing slope of the natural levee
        Enumerated_Domain:
          Enumerated_Domain_Value: U
          Enumerated_Domain_Value_Definition: (Levee/) Upland - Floodplain-
facing slope of the natural levee, from the levee crest to the adjacent lateral
marsh or lateral lake
```

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        Enumerated_Domain:
          Enumerated_Domain_Value: P
          Enumerated_Domain_Value_Definition: Palustrine - lateral marshes,
seasonally to perinnally flooded to less than 2 meters deep
        Enumerated_Domain:
          Enumerated_Domain_Value: L
          Enumerated_Domain_Value_Definition: Lacustrine - lateral lakes,
wetlands, and deepwater habitats
        Enumerated_Domain:
          Enumerated_Domain_Value: Ldd
          Enumerated_Domain_Value_Definition: a distributary delta in a
Lacustrine environment
        Enumerated_Domain:
          Enumerated_Domain_Value: Llt
          Enumerated_Domain_Value_Definition: Lacustrine, littoral - a subset of
the Lacustrine system, wetlands and deepwater habitats less than 2 meters deep
(margins) at summer water level
        Enumerated_Domain:
          Enumerated_Domain_Value: Llm
          Enumerated_Domain_Value_Definition: Lacustrine, limnetic - a subset of
the Lacustrine system, wetlands and deepwater habitats more than 2m deep
(bottoms) at summer water level
        Enumerated_Domain:
          Enumerated_Domain_Value: A
          Enumerated_Domain_Value_Definition: Anthropogenic - man-made features
(includes roads, railroad embankments, and dredge-spoil deposits)
        Enumerated_Domain:
          Enumerated_Domain_Value: DLT
          Enumerated_Domain_Value_Definition: Coeur d'Alene River delta - the
area from the mouth of the river to floor of the lake
        Enumerated_Domain:
          Enumerated_Domain_Value: UA
          Enumerated_Domain_Value_Definition: Upland Anthropogenic - artificial
features above summer water level
        Enumerated_Domain:
          Enumerated_Domain_Value: PA
          Enumerated_Domain_Value_Definition: Palustrine Anthropogenic -
artificial features within the wetlands
    Attribute:
      Attribute_Label: ENV
      Attribute_Definition: ENVIRONMENT IDENTIFIER - The label used to identify
sedimentary floodplain environment
      Attribute_Domain_Values:
        Enumerated_Domain:
          Enumerated_Domain_Value: LV
          Enumerated_Domain_Value_Definition: Levee - man-made embankment to
prevent flooding
        Enumerated_Domain:
```

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          Enumerated_Domain_Value: FB
          Enumerated_Domain_Value_Definition: Flood basin -  an area of the
earth which holds water at times of floods due to the strata dip usually from
the sides toward the middle (the river)
    Attribute:
      Attribute_Label: SEG
      Attribute_Definition: SEGMENT IDENTIFIER - The label used to identify a
segment of the river valley
      Attribute_Domain_Values:
        Enumerated_Domain:
          Enumerated_Domain_Value: Ua
          Enumerated_Domain_Value_Definition: Kingston segment (located in the
upper part of the main stem of the Coeur d'Alene River valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: Ub
          Enumerated_Domain_Value_Definition: Cataldo segment (located in the
upper part of the main stem of the Coeur d'Alene River valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: Uc
          Enumerated_Domain_Value_Definition: Dudley segment (located in the
upper part of the main stem of the Coeur d'Alene River valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: Ma
          Enumerated_Domain_Value_Definition: Rose Lake segment (located in the
middle part of the main stem of the Coeur d'Alene River valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: Mb
          Enumerated_Domain_Value_Definition: Lane segment (located in the
middle part of the main stem of the Coeur d'Alene River valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: Mc
          Enumerated_Domain_Value_Definition: Killarney segment (located in the
middle part of the main stem of the Coeur d'Alene River valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: La
          Enumerated_Domain_Value_Definition: Medimont segment (located in the
lower part of the main stem of the Coeur d'Alene River valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: Lb
          Enumerated_Domain_Value_Definition: Blue Lake segment (located in the
lower part of the main stem of the Coeur d'Alene River valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: Lc
          Enumerated_Domain_Value_Definition: Harrison segment (located in the
lower part of the main stem of the Coeur d'Alene River valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: DLTT
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          Enumerated_Domain_Value_Definition: Coeur d'Alene River delta toe
segment (located in the Coeur d'Alene Lake)
        Enumerated_Domain:
          Enumerated_Domain_Value: NF
          Enumerated_Domain_Value_Definition: North Fork segment (located in the
North Fork of the Coeur d'Alene River Valley)
        Enumerated_Domain:
          Enumerated_Domain_Value: SJRV
          Enumerated_Domain_Value_Definition: St. Joe segment (located in the
St. Joe River valley)
    Attribute:
      Attribute_Label: SEC
      Attribute_Definition: SECTION IDENTIFIER - Descriptions of completeness of
the stratigraphic section of mining-era sediments
      Attribute_Domain_Values:
        Enumerated_Domain:
          Enumerated_Domain_Value: f
          Enumerated_Domain_Value_Definition: Full stratigraphic section
(includes 1980 ash layer)
        Enumerated_Domain:
          Enumerated_Domain_Value: fna
          Enumerated_Domain_Value_Definition: Full stratigraphic section (does
NOT include 1980 ash layer)
        Enumerated_Domain:
          Enumerated_Domain_Value: nfna
          Enumerated_Domain_Value_Definition: Nearly full stratigraphic section
(does NOT include 1980 ash layer)
        Enumerated_Domain:
          Enumerated_Domain_Value: p
          Enumerated_Domain_Value_Definition: Partial stratigraphic section
(includes 1980 ash layer and bottoms in lead-rich sediments)
        Enumerated_Domain:
          Enumerated_Domain_Value: loPb
          Enumerated_Domain_Value_Definition: Stratigraphic section with less
than 1000 ppm of lead in sediments above and below the 1980 ash layer
    Attribute:
      Attribute_Label: AAMTD
      Attribute_Definition: AA METHOD  - the method used to identify and measure
thickness of post-1980 sediments
      Attribute_Domain_Values:
        Enumerated_Domain:
          Enumerated_Domain_Value: msr cm
          Enumerated_Domain_Value_Definition: Thickness above 1980 ash layer,
measured in centimeters
        Enumerated_Domain:
          Enumerated_Domain_Value: msr in
          Enumerated_Domain_Value_Definition: Thickness above 1980 ash layer,
measured in inches
```

Enumerated_Domain:
Enumerated_Domain_Value: Cs isotp
Enumerated_Domain_Value_Definition: Thickness in centimeters of sediment deposited after about 1980 (half of the thickness of the sediment deposited after 1969), as indicated by Cesium isotopic dating of the contact between silty lamentated sediment and overlying non-layered sediment in freeze box core M92CS.
Enumerated_Domain:
Enumerated_Domain_Value: correl
Enumerated_Domain_Value_Definition: Thickness in centimeters of sediment deposited after about 1980 (half of the thickness of the sediment deposited after 1969), as indicated by correlation of the contact between silty lamentated sediment and overlying non-layered sediment, as dated by correlation with freeze box core M92CS in which the 1969 contact was dated by the Cesium isotopic method.
Enumerated_Domain:
Enumerated_Domain_Value: nd
Enumerated_Domain_Value_Definition: Thickness was not determined
Attribute:
Attribute_Label: ASSAY_INT
Attribute_Definition: ASSAY INTERVAL - The sample-assay depth-interval criteria
Attribute_Domain_Values:
Enumerated_Domain:
Enumerated_Domain_Value: 2 span
Enumerated_Domain_Value_Definition: Samples were taken in a continuous series of 2-cm thick intervals.
Enumerated_Domain:
Enumerated_Domain_Value: 1-2.5 span
Enumerated_Domain_Value_Definition: Samples were taken in a continuous series of 1- to 2.5-cm thick intervals.
Enumerated_Domain:
Enumerated_Domain_Value: 0-5 aaba, 5-15
Enumerated_Domain_Value_Definition: Sample intervals were chosen by the following criteria: a 0-5 cm interval (split into above-ash and below-ash parts) and a 5-15 cm interval
Enumerated_Domain:
Enumerated_Domain_Value: strat span
Enumerated_Domain_Value_Definition: Continuous samples represent variable depth spans, based on stratigraphic layering
Enumerated_Domain:
Enumerated_Domain_Value: strat spot
Enumerated_Domain_Value_Definition: Discontinuous spot samples taken from the midpoint of the stratigraphic interval represented+
Enumerated_Domain:
Enumerated_Domain_Value: aatp, ba1btm

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          Enumerated_Domain_Value_Definition: Spot samples were collected at top
of AA interval, at bottom of BA1 interval, and at variable depth intervals below
the BA1 interval.
        Enumerated_Domain:
          Enumerated_Domain_Value: na
          Enumerated_Domain_Value_Definition: Sample was collected but not
analyzed for lead.
        Enumerated_Domain:
          Enumerated_Domain_Value: intrvl>aa
          Enumerated_Domain_Value_Definition: Recorded thickness of sampling
interval includes but exceeds thickness of sediments above the 1980 ash layer.
This information was not used in this study.
    Attribute:
      Attribute_Label: M_TO_R
      Attribute_Definition: METERS to RIVER - The distance (measured in meters)
from sample site to the nearest riverbank
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 2373
          Attribute_Units_of_Measure: meters
    Attribute:
      Attribute_Label: FLUV_FTR
      Attribute_Definition: FLUVIAL FEATURE - the type of feature found at
sample site
      Attribute_Domain_Values:
        Enumerated_Domain:
          Enumerated_Domain_Value: alluv terrace
          Enumerated_Domain_Value_Definition: alluvial terrace
        Enumerated_Domain:
          Enumerated_Domain_Value: distrib lv
          Enumerated_Domain_Value_Definition: distributary levee
        Enumerated_Domain:
          Enumerated_Domain_Value: inside bnk
          Enumerated_Domain_Value_Definition: inside bank - inside margin of a
river channel on a curve, bend or meander
        Enumerated_Domain:
          Enumerated_Domain_Value: inside rlv
          Enumerated_Domain_Value_Definition: inside river levee - inside margin
of a river levee on a curve, bend or meander
        Enumerated_Domain:
          Enumerated_Domain_Value: lat lk delta
          Enumerated_Domain_Value_Definition: lateral lake delta
        Enumerated_Domain:
          Enumerated_Domain_Value: lat lk limetic
          Enumerated_Domain_Value_Definition: lateral lake limnetic bottoms (in
more than 2 meters deep at summer water level)
        Enumerated_Domain:
```

```
          Enumerated_Domain_Value: lat lk littoral
          Enumerated_Domain_Value_Definition: lateral lake littoral margins (in
less than 2 meters deep at summer water level)
        Enumerated_Domain:
          Enumerated_Domain_Value: lat marsh
          Enumerated_Domain_Value_Definition: lateral marsh
        Enumerated_Domain:
          Enumerated_Domain_Value: main delta
          Enumerated_Domain_Value_Definition: main delta of the river
        Enumerated_Domain:
          Enumerated_Domain_Value: marsh anthr
          Enumerated_Domain_Value_Definition: anthropogenic marsh
        Enumerated_Domain:
          Enumerated_Domain_Value: n fk bank
          Enumerated_Domain_Value_Definition: bank of the North Fork River
        Enumerated_Domain:
          Enumerated_Domain_Value: outside bnk
          Enumerated_Domain_Value_Definition: outside bank - outside margin of a
river channel on a curve, bend or meander
        Enumerated_Domain:
          Enumerated_Domain_Value: outside rlv
          Enumerated_Domain_Value_Definition: outside river levee - outside
margin of a river levee on a curve, bend or meander
        Enumerated_Domain:
          Enumerated_Domain_Value: splay
          Enumerated_Domain_Value_Definition: sand splay
        Enumerated_Domain:
          Enumerated_Domain_Value: st joe bank
          Enumerated_Domain_Value_Definition: bank of the St. Joe River
        Enumerated_Domain:
          Enumerated_Domain_Value: straight bnk
          Enumerated_Domain_Value_Definition: straight bank - bank on a straight
portion of the river channel
        Enumerated_Domain:
          Enumerated_Domain_Value: straight rlv
          Enumerated_Domain_Value_Definition: straight river levee - river levee
along a straight portion of a river channel
        Enumerated_Domain:
          Enumerated_Domain_Value: uplnd anthr
          Enumerated_Domain_Value_Definition: anthropogenic upland
    Attribute:
      Attribute_Label: ASH_CM
      Attribute_Definition: ASH in CENTIMENTERS -Thickness (measured in
centimeters) of the 1980 volcanic-ash layer
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 4
```

```
          Attribute_Units_of_Measure: centimeters
    Attribute:
      Attribute_Label: AA_CM
      Attribute_Definition: AA in CENTIMETERS - Thickness (measured in
centimeters) of sediments deposited above the 1980 volcanic-ash layer
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 40
          Attribute_Units_of_Measure: centimeters
    Attribute:
      Attribute_Label: AA_10Y
      Attribute_Definition: AA in 10 YEARS -Maximum time period (measured in
decimal decades) from May 1980 to the sampling date in which sediments could
have been deposited subsequent to (above) the 1980 volcanic-ash layer
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 1
          Range_Domain_Maximum: 1.8
          Attribute_Units_of_Measure: decimal decades
    Attribute:
      Attribute_Label: AA_CM_10Y
      Attribute_Definition: AA in CENTIMETERS in 10 YEARS -Averaged rate of
deposition (cm/decade) for sediments deposited subsequent to the 1980 volcanic-
ash layer
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 28.6
          Attribute_Units_of_Measure: centimeters per decimal decade
    Attribute:
      Attribute_Label: BA_CM
      Attribute_Definition: BA in CENTIMETERS - Thickness (measured in
centimeters) of lead-rich sediments (containing at least 1000 ppm of lead)
deposited prior to (below) the 1980 volcanic-ash layer (and representing a time
span from about 1903 to 1980)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 290
          Attribute_Units_of_Measure: centimeters
    Attribute:
      Attribute_Label: BA_10Y
      Attribute_Definition: BA in 10 YEARS - Maximum time period (measured in
decimal decades from about 1903 and 1980) in which sediments could have been
deposited prior to the 1980
      Attribute_Domain_Values:
        Range_Domain:
```

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          Range_Domain_Minimum: 2.9
          Range_Domain_Maximum: 7.7
          Attribute_Units_of_Measure: decimal decades
    Attribute:
      Attribute_Label: BA_CM_10Y
      Attribute_Definition: BA in CENTIMETERS in 10 YEARS - Averaged rate of
deposition (cm/decade) for sediments deposited prior to the 1980 volcanic-ash
layer.
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 35.5
          Attribute_Units_of_Measure: centimenters per decimal decades
    Attribute:
      Attribute_Label: SR_AABA
      Attribute_Definition: SEDIMENTATION RATE in AABA - Ratio of the
sedimentation rate of sediments deposited after the May 1980 eruption of Mt. St.
Helens to sediments deposited prior to the May 1980 eruption of Mt. St. Helens.
(A value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0.11
          Range_Domain_Maximum: 10.31
          Attribute_Units_of_Measure: ratio
    Attribute:
      Attribute_Label: JBA_CM
      Attribute_Definition: JBA in CENTIMETERS -  Thickness (measured in
centimeters) of sample interval just below the base of the 1980 volcanic-ash
layer. (A value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0.2
          Range_Domain_Maximum: 36
          Attribute_Units_of_Measure: centimeters
    Attribute:
      Attribute_Label: JBA_AA
      Attribute_Definition: Ratio of thickness of sample interval immediately
below the base of the 1980 volcanic-ash layer to thickness of sediments
overlying the 1980 volcanic-ash layer. (A value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0
          Range_Domain_Maximum: 8.8
          Attribute_Units_of_Measure: ratio
    Attribute:
      Attribute_Label: BA1_CM
      Attribute_Definition: BA1 in CENTIMETERS - Thickness of stratigraphic
interval BA1, defined as a JBA interval with thickness equal to thickness of the
```

overlying AA interval +/- 10%. (BA1_CM therefore ranges from 0.9*AA_CM to 1.1*AA_CM in the same section). (A value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 2.2
          Range_Domain_Maximum: 16
          Attribute_Units_of_Measure: centimeters
    Attribute:
      Attribute_Label: PBR_CM
      Attribute_Definition: PBR in CENTIMETERS - Composite thickness (measured in centimeters) of sampling intervals which contain lead-rich sediments with values at or exceeding 1,000 ppm Pb. (A value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 5
          Range_Domain_Maximum: 300
          Attribute_Units_of_Measure: centimeters
    Attribute:
      Attribute_Label: PBR_10Y
      Attribute_Definition: PBR in 10 YEARS - Time period (measured in decimal decades) in which lead-rich sediments were deposited (PBR_10Y = sample date - 1903). (A value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 4.1
          Range_Domain_Maximum: 9.5
          Attribute_Units_of_Measure: decimal decades
    Attribute:
      Attribute_Label: PBR_CM_10Y
      Attribute_Definition: PBR in CENTIMETERS in 10 YEARS - Average sedimentation rate (cm/decade) for the composite thickness of sampling intervals which contain lead-rich sediments with values at or exceeding 1,000 ppm Pb. (A value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0.6
          Range_Domain_Maximum: 33
          Attribute_Units_of_Measure: cemtimeters per decimal decades
    Attribute:
      Attribute_Label: PBR_PB
      Attribute_Definition: PBR LEAD - Weighted-average concentration of lead (measured in ppm) for the composite thickness of sampling intervals which contain lead-rich sediments with values at or exceeding 1,000 ppm Pb. (A value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 915
          Range_Domain_Maximum: 14129

```
          Attribute_Units_of_Measure: ppm (parts per million)
    Attribute:
      Attribute_Label: AA_PB
      Attribute_Definition: AA LEAD - Weighted-average concentration of lead
(measured in ppm) in sediments deposited above the 1980 volcanic-ash layer. (A
value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 21
          Range_Domain_Maximum: 7460
          Attribute_Units_of_Measure: ppm (parts per million)
    Attribute:
      Attribute_Label: BA_PB
      Attribute_Definition: Weighted-average concentration of lead (ppm Pb) in
sediments deposited below the 1980 volcanic-ash layer. (A value of -999
indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 23
          Range_Domain_Maximum: 13940
          Attribute_Units_of_Measure: ppm (parts per million)
    Attribute:
      Attribute_Label: PB_AABA
      Attribute_Definition: Ratio of weighted-average lead concentration (ppm
Pb) in sediments deposited above the 1980 volcanic-ash layer. (A value of -999
indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 0.16
          Range_Domain_Maximum: 2.58
          Attribute_Units_of_Measure: ratio
    Attribute:
      Attribute_Label: JBA_PB
      Attribute_Definition: JBA LEAD - Concentration of lead (ppm Pb) in the
sample interval immediately below the base of the 1980 volcanic-ash layer. (A
value of -999 indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
          Range_Domain_Minimum: 66
          Range_Domain_Maximum: 9810
          Attribute_Units_of_Measure: ppm (parts per million)
    Attribute:
      Attribute_Label: BA1_PB
      Attribute_Definition: BA1 LEAD - Concentration of lead (ppm Pb) in
sediments of the BA1 stratigraphic interval (defined above). (A value of -999
indicates no data.)
      Attribute_Domain_Values:
        Range_Domain:
```

Range_Domain_Minimum: 1500
Range_Domain_Maximum: 6735
Attribute_Units_of_Measure: ppm (parts per million)
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Attribute_Label: PBAA_BA1
Attribute_Definition: Ratio of lead concentration in sediments above the 1980 Mt. St. Helens ash intervals to the concentration of lead in sediments below the 1980 Mt. St. Helens ash interval. (A value of -999 indicates no data.)
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Entity_and_Attribute_Overview: This metadata describes one geospatial dataset CDA_SR_PB shapefile (an ESRI-format file). The shapefile consists of five individual files: CDA_SR_PB.SHP, CDA_SR_PB.SHX, CDA_SR_PB.DBF, CDA_SR_PB.SBN, CDA_SR_PB.SBX that together provide spatial data. An ArcView (ver. 3.2) legend, CDA_SR_PB.SHX, was created (and included) to symbolize the post-1980 sedimentation (measured in cm/decade). A "-999" in any of the shapefile attributes denotes "no useable data".
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  Metadata_Contact:
    Contact_Information:
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        Contact_Organization: Information Systems Support, Inc. (under contract
to the U.S. Geological Survey)
        Contact_Person: John C. Wallis , Helen Z. Kayser
      Contact_Position: GIS Specialists
      Contact_Address:
        Address_Type: mailing and physical address
        Address: 904 W. Riverside Avenue, Rm. 202
        City: Spokane
        State_or_Province: Washington
        Postal_Code: 99201
        Country: USA
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      Contact_Facsimile_Telephone: 1-509-368-3199
      Contact_Electronic_Mail_Address: jwallis@usgs.gov, hkayser@usgs.gov
  Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata
  Metadata_Standard_Version: FGDC-STD-001-1998
  Metadata_Time_Convention: local time
  Metadata_Access_Constraints: none
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    Online_Linkage: http://www.esri.com/metadata/esriprof80.html
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